

Artistic Style Transfer

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Motivation

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Using a biologically inspired vision model, called “Deep Neural Networks,” an artificial system can be trained to learn different styles of painting and subsequently recreate images rendered in that style.

The model is successful because it is able to distinguish between “style” vs. “content”



Algorithm Overview

Input:

Content Image



Style Image

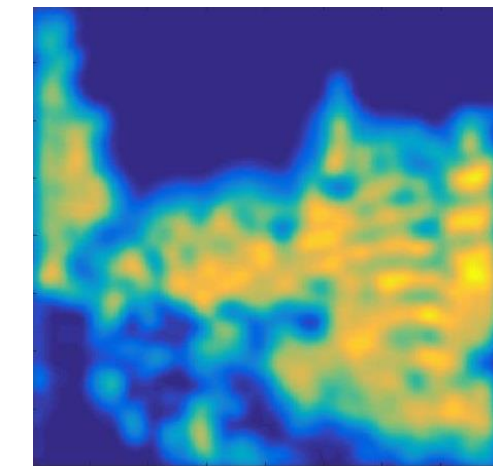


Hallucination

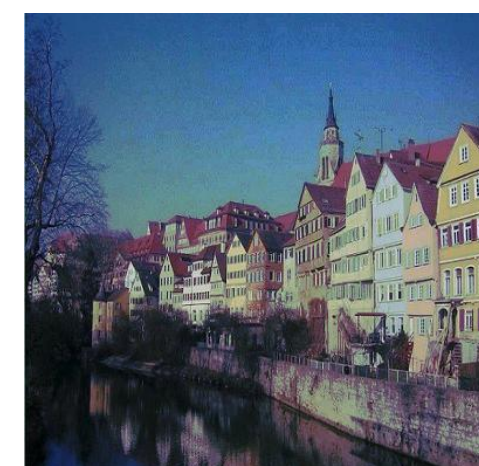


Initialization:

Segmentation



Color transfer



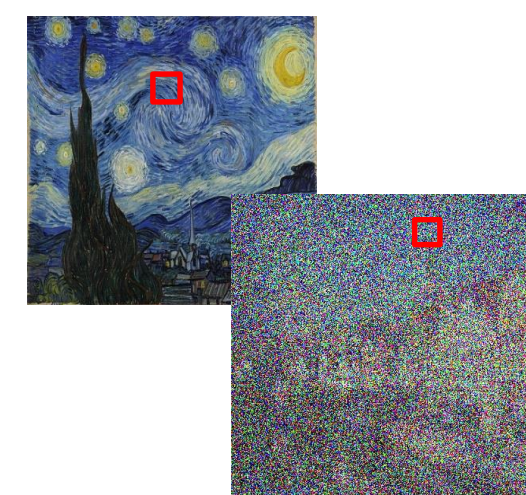
Add noise



Loop over scales:

Loop over patch sizes:

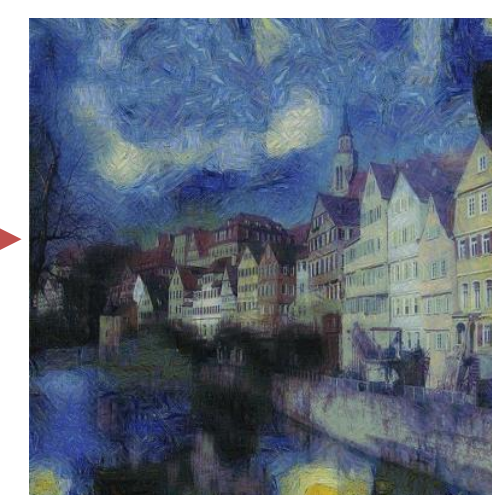
Patch Matching



Style Synthesis



Content Fusion



Color Transfer

Denoise

Increase patch size

Resize Estimate (increase scale)

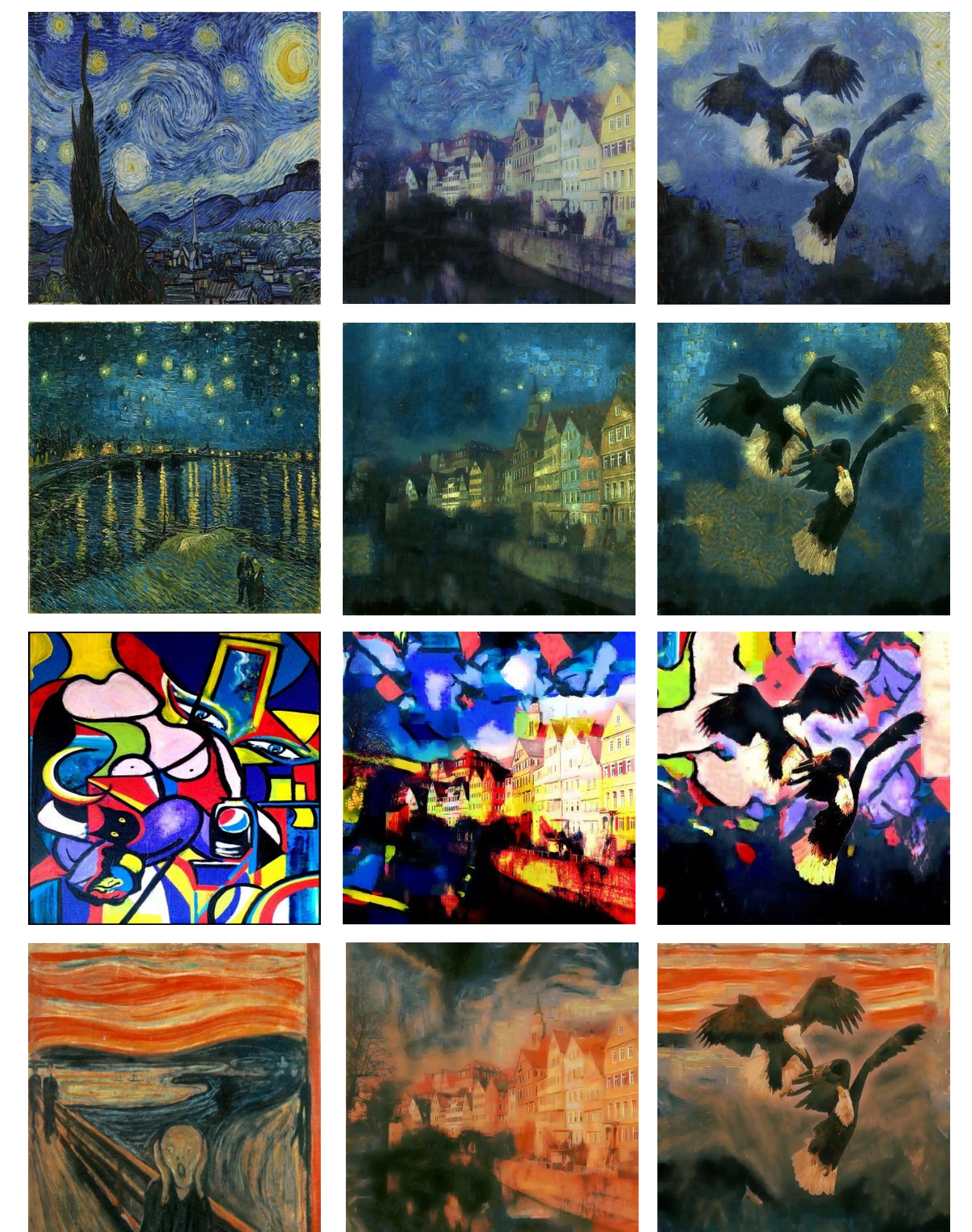


Experimental Results

Content
Style



Chosen parameters: 3 scales, 2 patch sizes (except smallest scale uses 3 patch sizes), 10% NN noise, 25%+75% hallucination averaging



Hallucination percentage influence :

0%

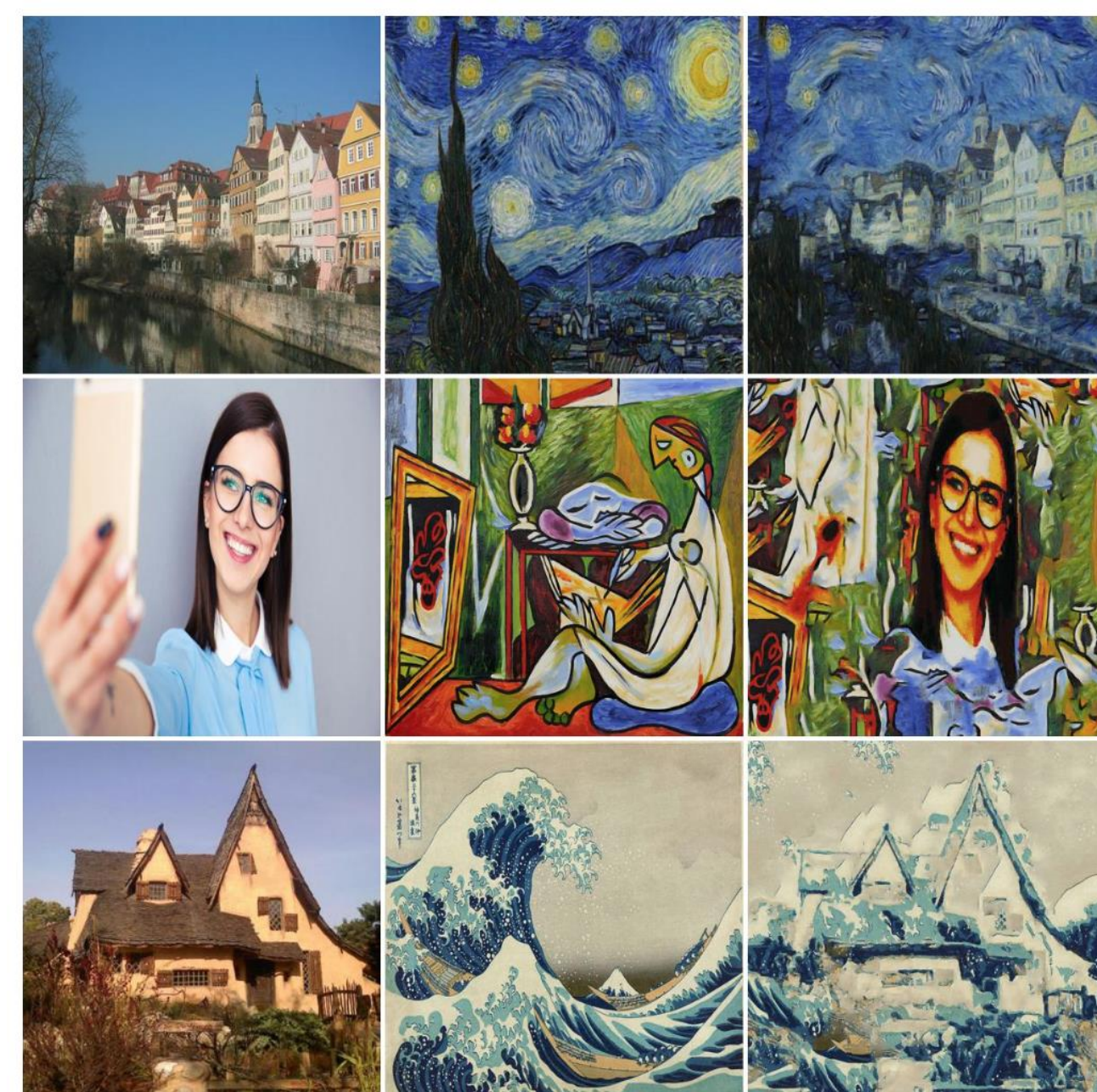
10%

25%

50%



Related Work



Using a modification (Elad) of Texture-Synthesis (Kwatra), it is possible to get fast and comparable style-transfer results. This method focuses on separating information-poor areas to hallucinate the style and high content areas where it keeps the original image

